

## REMARKS/ARGUMENTS

Claim 11 has been amended, replacing the term “*interfolding machine*” with “*paper converting machine*”. Claims 11 and 25 have been amended to limit “*slidable sealing elements*” to “*two angularly distanced slidable sealing elements*”. These amendments to Claims 11 and 25 further specify the structural limitations previously recited in Claim 13. Claim 13 recites in part: “said slidable sealing elements extending radially between said first and second bodies to define said at least one suction chamber . . . .” Having more than one slidable element extending radially between the first and second bodies to define a suction chamber is equivalent to having two angularly displaced slidable elements extending between the first and second bodies. Consequently, the language of amended Claims 11 and 25 does not raise new issues requiring further searches or consideration.

Claim 14 has been amended in response to the 35 U.S.C 112, second paragraph rejection. Claim 14 now sets forth that the plurality of openings recited in Claim 14 includes the opening recited in parent Claim 13.

Claims 13 and 15 have been canceled. Claims 13 and 15 were parent claims of Claim 16. Claim 16 has been rewritten in independent form, including all of the elements of Claims 11, 13 and 15 prior to the amendments in the current Reply (please see response dated July 27, 2006 to the Office Action of January 27, 2006). Claim 16 is free of any language not previously recited in prior claims.

In summation, no new structural features have been introduced into Claims 11, 14, 16 or 25. Claims 11, 14, 16 and 25 are simply restatements of previously claimed elements, restated to give better clarification of the claimed invention over the references cited in the latest Office Action. The amendment obviates the rejection of the claims without introducing any new issues requiring further search and/or consideration. Accordingly, applicant courteously requests that the claims be entered.

At page 2 of the Official Action, Claims 14, 23 and 24 were rejected under 35 U.S.C. 112, second paragraph. This ground of rejection is courteously traversed as it applies to the claims now presented for further examination. Claim 14 has been amended in response to the rejection under 35 U.S.C. 112, second paragraph and is now definite

and particularly points out and distinctly claims the subject matter applicant regards as the invention. Applicant courteously requests that the rejection under 35 U.S.C. 112, second paragraph be withdrawn.

Claims 11-17, 19, 21, 23 and 25-27 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 1,120,432 (*Atkins*). Applicant respectfully traverses the rejection.

“A claim is anticipated [under 35 U.S.C. 102] only if each and every element as set forth in the claims is found, either expressly or inherently described in a single prior art reference.” *Vandergaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987); MPEP § 2131 (emphasis added). *Atkins* fails to either expressly or inherently describe each and every element as set forth in the claims.

Amended Claims 11 and 25 presently recite **two angularly distanced** slidable sealing elements. *Atkins* only discusses **one** slidable sealing element. *Atkins* does not discuss two slidable sealing elements, nor does *Atkins* discuss angularly distanced slidable sealing elements. Having two angularly distanced slidable sealing elements reduces the frictional surface area between the slidable elements and the inner surface of the roller, especially in comparison to the one slidable sealing element described in *Atkins*, which discusses a wooden comb structure in block s (page 1, line 35 of *Atkins*), also recited as “perforations”. This structure limits the capabilities of the roller disclosed in *Atkins* such that the roller has a limited rotation speed and is not capable of the high speeds common in the art (in excess of 700 meters per minute). Block s is made out of wood (page 1, line 35 of *Atkins*), causing it to be highly susceptible to wear, heat, and water damage, decreasing the suction efficiency of the roller. Block s also fails to provide for equal distribution of suction to all of the holes on the active area of the roller. This is highly undesirable in paper converting machines that have to pick up sheets and webs at high speeds.

Furthermore, each and every component of the sealing element in *Atkins* is laterally or horizontally displaced. That is, each structure is substantially perpendicular or parallel relative to another structure. Block s comprises a plurality of “perforations” or

“teeth” that are perpendicular to the base of block s. Thus, none of the components of the sealing element discussed in *Atkins* are angularly distanced.

The structural arrangement recited in Claims 11 and 25 provides for minimal contact between the slidable sealing elements and the inner surface of the roller, thereby minimizing friction. Minimizing friction reduces the likelihood of heat damage when rotating at high speeds and reduces the energy required to rotate the roller, thereby increasing energy efficiency. The structural arrangement also provides very constant suction in the active area for all the length of the roller and for all the angular extension of the active area, creating a very effective roller with a simple arrangement for paper converting machines.

Claims 11 and 25 are patentable over *Atkins* for reasons outlined above. Allowance of the same is courteously requested. Since Claims 11 and 25 are allowable, Claims 12-24 and Claims 26-27, dependent from Claims 11 and 25, respectively, should also be allowable.

With respect to Claim 16, *Atkins* fails to describe slidable sealing elements extending radially between the first and second bodies. The singular sealing element in *Atkins* only extends radially between the two bodies at points a (see Figure 1), where the connection to the suction device is made. The sealing element does not extend radially between the points a in *Atkins* (note the open area in Figure 1 between each vacuum connection). The sealing elements are thus discontinuous in *Atkins*, and do not extend radially as recited in Claim 16.

*Atkins* also fails to describe a slidable sealing element having a fixed portion as means for forming a longitudinal guide within which a bar can slide and resiliently engage with the inner surface of the outer tubular body. *Atkins* describes a comb structure s (as shown in Figures 1 and 2) that is bolted to the sealing structure and resiliently engages g by means of a bolt y. Stated alternatively, the comb structure comprises many individual ‘fingers’, teeth or perforations that are forced into a resilient engagement with g by means of elements x, y and z in combination. However, not all of block s resiliently engages the body. Elements x, y and z only exert a resilient force upon s between the outer longitudinal walls of t. The seal for the vacuum of the sealing element in *Atkins* is

provided by the two longitudinal end pieces of s and **are not resiliently engaged with g, but are only fixedly secured.** Thus, the outermost edges of s can not be described as equivalent structures to the bar as recited in Claim 16 because they lack resilient engagement. Only the comb structure, the individual teeth of s, resiliently engages the inner surface of the outer body.

Since the outer structure of block s (the only structure engaging g that could be described as having a bar shape as recited in Claim 16) does not resiliently engage g, it does not require a longitudinal guide. Accordingly, the apparatus in *Atkins* does not have a longitudinal guide as is claimed in Claim 16. Furthermore, the lower structure of block s (the planar section most clearly shown in Figure 2, upon which the teeth of s protrude) travels within the inner walls of t. This arrangement can be likened to a longitudinal guide; however, this is not a longitudinal guide as claimed. Specifically, the resilient elements of s do not perform the function of providing a seal against g to define at least one suction chamber as recited in Claim 16. The suction chamber in *Atkins* is defined by the outer walls of t and the outer, permanently affixed and non-resilient ends of block s.

It should be appreciated that the use of comb structure s requires a much greater level of precision and results in a much more complicated arrangement of elements engaging the inner surface of the outer rotating body. The plurality of individual teeth of s greatly increases the points of friction in the apparatus whereas the present invention only has two, each bar of the two slidable elements. The extension s is also very wide for the desired suction area. The contact between s and the inner surface of the roller creates continuous friction between the two elements throughout the entire top surface section of s. The continuous friction greatly increases heat production as well as power consumption. Alternatively, the present invention claims longitudinal bars, which creates a discontinuous friction area thus allowing for greater heat dissipation than what is present in the continuous construction of s. Poor heat dissipation and continuous heat buildup can lead to damage of all of the components of the roller and the paper or web product being rolled.

Block s, as discussed in *Atkins*, is arranged for pressure management with respect to the removal of water from paper as it is being rolled. The level of resilience spring y exerts upwardly against block s is arranged so as to provide a substantial equalization in

pressure between the atmospheric pressure outside the apparatus and block s (p. 1, lines 89-100). This equalization reduces the stress on the outer roller and reduces the likelihood of damage or misalignment. The sealing elements in the present application restrict the vacuum chamber to a certain section between the two bodies. Such a function is not performed by the resilient elements of block s, but by the non-resilient outer edges of block s. Thus, the sealing element in *Atkins* and the sealing elements in the present application are not structurally or functionally equivalent.

Claim 16 is patentable over *Atkins*. Claim 16, for these reasons outlined above in addition to the reasons outlined for Claim 11, is allowable, upon which action is courteously requested.

Claims 18, 20, 22 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 1,120,432 (*Atkins*) in view of the admitted prior art of paragraphs [0003] through [0008] of the specification. Applicant respectfully traverses the rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The first and second criteria are moot since the third criterion has not been established; the references cited by the Examiner fail to teach or suggest all the claim limitations. Claims 18, 20, 22 and 24 are dependent upon Claim 11, and as previously discussed, *Atkins* fails to teach or suggest two angularly distanced slidable sealing elements as claimed in Claim 11. The prior art as discussed in paragraphs [0003] through [0008] of the present application, does not teach these elements. The prior art discussed in the present application provides for sealing means between separate chambers within

the roller that are fixed and that do not slide or resiliently engage an inner surface of the outer roller.

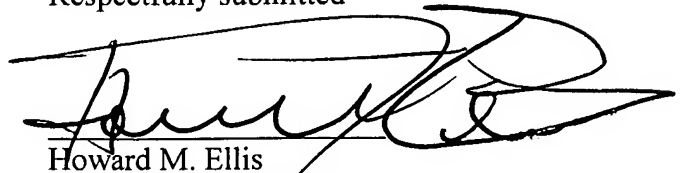
Thus, *Atkins* combined with the prior art discussed in paragraphs [0003] through [0008] of the present application does not teach or suggest all of the claimed elements of Claims 18, 20, 22 and 24 rejected under 35 U.S.C. 103(a). Claims 18, 20, 22 and 24 are patentable over *Atkins*. Claims 18, 20, 22 and 24 are allowable, upon which action is courteously requested.

### CONCLUSION

Applicant courteously requests withdrawal of the rejections of claims under 35 U.S.C. 102(b), 103(a) and 112, second paragraph. In view of the amended claims and foregoing remarks, this application is now in condition for allowance, and notification of the same at an early date is earnestly solicited.

Applicant also courteously requests the entry of the amendments to the claims since they do not present new issues requiring further search or consideration. Even if the new claims are not viewed as patentable by the Examiner, entry of said claims is still requested so as to provide for more efficient further prosecution.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'Howard M. Ellis', is written over a horizontal line.

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